

ORIGINAL

RECEIVED

Before the  
Federal Communications Commission  
Washington, DC 20554

SEP 24 1997

FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF THE SECRETARY

DOCKET FILE COPY ORIGINAL

In the Matter of:

Federal-State Joint Board on  
Universal Service

Forward-Looking Mechanism  
for High Cost Support for  
Non-Rural LECs

CC Docket No. 96-45

CC Docket No. 97-160

**Comments of AirTouch Communications, Inc. on  
Sections III. C. 2. (f) and IV.**

Kathleen Q. Abernathy  
David A. Gross  
AirTouch Communications, Inc.  
1818 N Street, NW  
Suite 800  
Washington, DC 20036  
(202)293-3800

Its Attorneys

September 24, 1997

No. of Copies filed  
Date

0+3

## Table of Contents

<b>SUMMARY .....</b>	<b>ii</b>
<b>INTRODUCTION .....</b>	<b>1</b>
<b>DISCUSSION .....</b>	<b>3</b>
<i>Support Based on a Model Which Incorporates a Wireless Threshold Meets the Statutory Directive That Support Be Sufficient .....</i>	<i>4</i>
<i>Providing Support Based on the Cost of a Wireline Network Where Lower-Cost Technology is Available is Not “Efficient” .....</i>	<i>6</i>
<i>A “Wireless Threshold” Should Be Based on Local Conditions .....</i>	<i>7</i>
<i>The Commission’s Adopted Cost Model Should Consider Any Wireless Technology Suitable for Local Exchange Service .....</i>	<i>8</i>
<i>The Commission Can Develop a Sufficient Record for a Wireless Cost Model .....</i>	<i>9</i>
<i>Competitive Bidding is a Better Method to Capture Efficiencies Based on Wireline and Wireless Cost Differences and Should Be Adopted When Markets Are Sufficiently Competitive .....</i>	<i>13</i>
<b>CONCLUSION.....</b>	<b>15</b>

## Summary

To obtain the full social benefits of the Commission's universal service reform proposals, it is vital that cost proxy models truly reflect the forward-looking costs of efficient local exchange service provision. AirTouch observes that the cost modeling approaches proposed so far almost entirely assume the use of wireline technology, and focus on measuring the level of revenue loss an ILEC can tolerate, not the cost of making affordable telecommunications services available.

The Commission has established sound principles to govern the model eventually selected, and it should apply those principles to develop a better approach. Specifically, in order to base the costs of universal service on the forward-looking economic costs of an efficient provider using the least-cost technology, the Commission should adopt its tentative conclusion that the selected model estimate the cost of service using wireless technology where it is the least-cost, most efficient technology.

Adopting such a "wireless threshold" is consistent with the principle that universal service support be "sufficient." Having established that support based on forward-looking economic costs is sufficient, assuming the use of wireless technology where such use is dictated by a forward-looking approach is also sufficient. A wireless threshold is also necessary to ensure that cost models meet the principle that universal service mechanisms be "efficient." An "efficient" universal service program will use or simulate market incentives to guide technology choices. Where wireless technology is the least-cost, most-efficient technology, the model must take that into account to be considered "efficient."

The wireless threshold should be tailored to local conditions. The algorithm in the cost model should simply allow the level of the cap to vary with local market conditions, e.g., terrain or subscriber density, as indicated by user input. AirTouch submits that this approach better serves the public interest than a single cap, particularly one as high as the \$10,000 proposed in the BCPM. A single cap is much more likely result in excessive support obligations being imposed on consumers and other carriers. Similarly, a wireless threshold should not assume a single type of wireless technology, but recognize that a variety of technologies are available, and depending on local conditions, one or the other will represent the least-cost, most efficient technology for that service area.

The Commission can assemble sufficient data in order to adopt a cost model incorporating a wireless threshold within its proposed timetable. Data concerning the cost, capacity, and capabilities of wireless facilities as compared to wireline are publicly available in government and academic studies and from manufacturers. Wireless technology is being used throughout the world to provide local exchange services, and information from abroad can also be used to inform the Commission's development of a wireless threshold in the cost proxy model. AirTouch provides a sample of publicly available information in the attached comments.

Finally, the Commission is correct to note that a system of competitive bidding for universal service subsidies would be a better means for capturing the cost differences between wireless and wireline technology. However, there is not yet sufficient competition in the local exchange market to allow competitive bidding for subsidies to serve the public interest. The theoretical superiority of auctions should not disrupt the Commission's significant efforts to develop a cost proxy model. The Commission should begin its proceeding on universal service auctions, and address auction design issues there.

A properly designed cost proxy model can introduce price-cap like incentives for efficiency into the universal service subsidy system. The present universal service system is fatally flawed because it contains little incentives for cost reduction and insulates the subsidized carriers from competition, generating efficiency losses for consumers. Models based solely on wireline technology exacerbate the bias toward incumbent LECs, and fail to recognize that wireless technology is often more efficient, both in terms of overall cost and in terms of avoiding the "lumpy" investment associated with a fixed copper loop. Accordingly, the Commission must adopt a cost proxy model that acknowledges the possibilities of wireless technology for providing universal service.

**Before the Federal Communications Commission  
Washington, D.C. 20554**

In the Matter of:	)	
	)	
	)	
Federal-State Joint Board on	)	CC Docket No. 96-45
Universal Service	)	
	)	
Forward-Looking Mechanism	)	CC Docket No. 97-160
for High Cost Support for	)	
Non-Rural LECs	)	
	)	

**Comments of AirTouch Communications, Inc. on  
Sections III. C. 2. (f) and IV.**

AirTouch Communications, Inc. (“AirTouch”) respectfully submits the following comments on the Further Notice of Proposed Rulemaking in the above-captioned proceedings.<sup>1</sup> AirTouch is a wireless communications company with interests in cellular, paging, personal communications services, satellite, and other operations. AirTouch provides these comments to offer its input on the Commission’s examination of cost proxy models for a reformed universal service program, particularly on the “wireless threshold.”

**INTRODUCTION**

The Federal Communications Commission (“Commission”) has taken important steps toward overhauling federal universal service policy. If competitive local exchange markets are ever to be achieved, it is vital that the Commission continue to reform what has been an inefficient and anticompetitive means of supporting a laudable public policy objective. Ultimately, the Commission should rely on market forces rather than regulation to set support levels through the competitive process. Today, however, market forces are not strong enough to protect the public interest – the vast majority of incumbent local

---

<sup>1</sup>In the Matter of Federal-State Joint Board on Universal Service, Further Notice of Proposed Rulemaking, CC Docket Nos. 96-45 and 97-160 (released July 18, 1997)(“Further Notice”).

exchange carriers ("ILECs") still dominate the local service markets, in large part as a direct consequence of long-standing government protection of their dominant market position in order to subsidize local services. Until state and federal regulators are willing to relinquish fully this method of subsidizing local services, and until competition is able to overcome the historical advantages held by the ILECs, it is necessary to supplement market forces with regulatory caps on support payments.

One of the most important decisions made by the Commission in its August 8, 1997, Universal Service Order is the decision to base support payments on the projected forward-looking economic costs of an efficient service provider, and to adopt a support mechanism based on this approach for non-rural carriers by August 1998.<sup>2</sup> This methodology can introduce price-cap like efficiency incentives. The present universal service system, where carriers are subsidized on a cost-plus or rate-of-return basis, is fatally flawed because it contains little incentive for cost reduction and insulates the subsidized carriers from competition, generating efficiency losses for consumers.

To obtain the full social benefits that the Commission's new approach can offer, however, it is vital that proxy cost models truly reflect the forward-looking costs of efficient local exchange service provision. AirTouch observes that the cost modeling approaches proposed in the record almost entirely assume the use of wireline technology and are based on assumptions which are true for only the incumbent LEC. In addition, the models appear to measure the wrong things. The models appear to be intended to compare existing incumbent LEC costs with the costs of a hypothetical "efficient" carrier in order to measure the level of revenue loss an ILEC can tolerate, not to measure the cost of making affordable telecommunications services available.

---

<sup>2</sup>"Federal-State Joint Board on Universal Service," CC Docket No. 96-45, Report and Order, FCC 97-157 (May 8, 1997)("Universal Service Order"), paras. 224-226.

The cost proxy model should not simply be a device which allows the Commission to gauge the appropriate level of “fat” to trim from the ILEC’s subsidy meals. Rather, it should be a device that ensures that affordable service will be available even for high-cost or uneconomic subscribers, while also incorporating market incentives to control the level of subsidy provided. Consequently, the Commission should adopt its tentative conclusion that the selected mechanism estimate the cost of providing the supported services using wireless technology in areas where wireless technology is likely to be the least-cost, most-efficient technology.

## **DISCUSSION**

Section III.C.2.f. of the Further Notice seeks comment on whether the cost models should include an additional component in the cost model mechanism that would compare the cost of providing service via a wireless network with the cost of providing service via a wireline network, and choose the lower-cost technology to calculate the costs of providing the supported services.<sup>3</sup> AirTouch submits that the cost models must include such a “wireless threshold” mechanism in order to comply with the principles of the Commission’s Universal Service Order.

The Further Notice raises a number of issues with respect to a “wireless threshold”, including:

- a) Assuming wireless costs are less than wireline costs in a given situation, (i) would support based on the forward-looking costs of wireless technology be legally “sufficient,” and (ii) would support based on wireline costs be “efficient” ?
- b) Should the cap be a uniform level or should it be tailored to local conditions ?
- c) What technologies should be considered ?
- d) Should the Commission instead rely on the use of competitive bidding to limit support levels in those markets in which wireless technology is lower cost than wireline?

---

<sup>3</sup>Further Notice, para. 99.

- e) Are sufficient data available on which to base a wireless threshold and can that data be gathered on the record in a reasonable time frame?

AirTouch addresses each of these questions below.

- *Support Based on a Model Which Incorporates a "Wireless Threshold" Meets the Statutory Directive That Support Be Sufficient*

As the Commission concluded in the Universal Service Order, incumbent LEC's embedded costs are not the touchstone of whether support is "sufficient."<sup>4</sup> The statutory directive that support be "sufficient" simply means that support be sufficient to enable provision of the required services, regardless of the technology used or the carrier assuming the obligation. The Commission should adopt the tentative conclusions which incorporate the logical consequences of that decision into the selected cost model. Including wireless technology in calculating the costs of service is also consistent with the principles established by Congress and the Commission that wireless carriers are eligible to receive universal service support where they provide basic services in high cost areas.<sup>5</sup>

The following example illustrates these points. The selected model will estimate the cost of providing service for all businesses and households within a region,<sup>6</sup> presumably because all eligible carriers will have a universal service obligation to provide service to all businesses and households within a region. But the Commission also appears to have concluded correctly that it will not adjust support levels to account for any loss of economies of scale and density that may occur when traffic is split among two or more carriers.<sup>7</sup> In part because of wireless technology's efficiency in responding to competition,

---

<sup>4</sup>Universal Service Order, paras. 227 and 228 (the latter, noting the Joint Board's explanation that when "embedded costs are above forward-looking costs, support of embedded costs would direct carriers to make inefficient investments that may not be financially viable when there is competitive entry.") (footnote omitted).

<sup>5</sup>See, e.g., Further Notice, para. 95, n.152.

<sup>6</sup>See Universal Service Order, para. 250 (condition 6 of any acceptable cost study or methodology).

<sup>7</sup>Ibid.



AirTouch agrees that support levels will be “sufficient” even if they are not adjusted on this basis.

To provide incumbent LECs with additional support in response to competition would both undermine competition and violate the principle to base support on forward-looking costs. Specifically, providing additional support in response to competition would preserve the “natural monopoly” theory that costs increase where demand is divided among two or more carriers. It was this “natural monopoly” premise that was clearly rejected by the 1996 Telecommunications Act in which Congress directed that local markets to be opened to competition.<sup>8</sup> At a minimum, since this cost model will be used to provide support in non-rural areas, there should be no issue as to whether this “natural monopoly” scenario continues to hold true as a matter of economics.<sup>9</sup>

Moreover, providing support based on the costs of serving an entire area with wireline technology would be tantamount to basing support on the embedded costs of wireline technology, not forward-looking economic costs. Wireless loops can be “deactivated” with significant cost savings, while the costs of wireline loops remain even if the customer changes carriers. Modeling costs based on the “lumpy” investments characteristic of wireline plant would overestimate the cost of unused capacity (and the potential for stranded costs) associated with universal service. If the cost model is not intended to be based on embedded costs, it is not necessary to include this overestimation in order to make the level of support “sufficient.”

---

<sup>8</sup>See, e.g., Joint Explanatory Statement of the Conference Managers, S. Conf. Rep. No. 104-230, 104<sup>th</sup> Cong., 2d Sess. 113 (1996), at 1 (intent of legislation is to “accelerate rapidly private sector deployment of advanced telecommunications by opening all telecommunications markets to competition”).

<sup>9</sup>Certain rural incumbent LECs continue to believe that competition will produce overall efficiency losses for consumers because rural areas have this “natural monopoly” characteristic. See, e.g., Comments of TDS Telecom on Customer Location Issues (September 2, 1997), at 5 (single network model may not be accurate in rural areas because competition may result in less, not greater, efficiency in providing service). Even so, it should be for markets, not regulators, to decide whether customers in rural areas are better off having more than one telecommunications service provider. AirTouch supports the Commission’s efforts to adopt a cost proxy model for use in rural areas.

Cost modeling is more than a technical exercise. The choice of what costs to model is an important public policy decision that directly affects the economic viability of local service competition. Accordingly, AirTouch recommends that the selected model state clearly the costs the models are supposed to be examining and be rigorous in adhering to forward-looking economic cost principles. As the Commission specifically concluded, basing support on those costs will comply with the statutory directive to provide sufficient support.

- *Providing Support Based on the Cost of A Wireline Network Where Lower-Cost Wireless Technology is Available Is Not "Efficient"*

In the Universal Service Order, the Commission established that the technology assumed in the cost model must be the least-cost, most-efficient, and reasonable technology for providing the supported services.<sup>10</sup> Thus, where two different wireline technologies differ in their forward-looking economic costs, the cost model will assume the lower set of costs. The cost model should treat differences between wireline and wireless costs no differently. As the Commission notes, carriers (including incumbent LECs) are free to choose any preferred technology to provide the supported services.<sup>11</sup> An "efficient" universal service program will use or simulate market incentives to guide that choice. Where wireless technology is the least-cost, most-efficient technology, the cost model must take that into account in order to be considered "efficient."

Setting support levels using the most efficient technology in the cost model drives efficient behavior on the part of telecommunications carriers. On the other hand, providing support based on more expensive wireline costs could yield results inconsistent with the statutory mandate of Section 254. As the Commission previously noted, "setting support levels in excess of forward-looking economic cost would enable the carriers

---

<sup>10</sup> See, e.g., Universal Service Order, para. 250; Further Notice, para. 13, n.39.

<sup>11</sup> Further Notice, para. 95.

providing the supported services to use the excess to offset inefficient operations for purposes other than the provision, maintenance, and upgrading of facilities and services for which the support is intended.”<sup>12</sup> Finally, providing support based on more expensive wireline costs where wireless costs are lower would ignore the fact that some incumbent LECs already utilize wireless technologies to provide service where wireless is seen as more efficient, and allow these ILECs to receive excessive support payments.<sup>13</sup>

- *A “Wireless Threshold” Should Be Based On Local Conditions*

There are at least two fundamental approaches toward establishing a “wireless threshold” component in a forward-looking cost model. Under one approach, the per-line cost of providing universal service is capped at an absolute amount which represents the estimated cost of providing wireless local loops, e.g., \$10,000 as is currently done in the BCPM model.<sup>14</sup> The alternative approach allows the level of the cap to vary with local market conditions, e.g., terrain or subscriber density. AirTouch submits that the latter approach better serves the public interest. Only by tailoring the wireless threshold to local conditions will it truly represent the forward-looking costs of an efficient provider.

Measuring the wireless threshold by considering local market conditions is necessary for the model to meet the criteria required by the Commission’s Universal Service Order.<sup>15</sup> Specifically, the wireless threshold is necessary for the model to reflect

---

<sup>12</sup>See, e.g., Universal Service Order, para. 225, citing 47 U.S.C. § 254(e); see also 47 U.S.C. § 254(k)(providing that supported service revenue may not be used to subsidize other competitive services).

<sup>13</sup>See, e.g., 47 C.F.R. §§ 22.701-759 (regulations governing Rural Radiotelephone Service and Basic Exchange Telephone Radio Systems (“BETRS”). Indeed, ILECs have argued that they should be given exclusive rights to use this spectrum and, unlike all other similarly situated licensees, be exempted from having to win a license through competitive bidding. Nevertheless, the Commission correctly concluded that since the local exchange service currently offered by BETRS could be offered by wireless or wireline providers in the future, it may not be logical to continue to exempt BETRS from geographic area licensing and auctions in such a potentially competitive environment. See, e.g., Second Report and Order and FNPRM, WT Docket 96-18, (February 24, 1997), paras. 28-34.

<sup>14</sup>See Further Notice, para. 96.

<sup>15</sup>See Universal Service Order, para. 250; Further Notice, para. 13, n.39.

the forward-looking costs of an efficient provider, rely on reasonable engineering assumptions and generate plausible outputs. Additionally, the wireless threshold should be no different than other aspects of the model that also account for the effects of local conditions including terrain and subscriber density on costs.<sup>16</sup>

In contrast, a model that simply caps loop costs at a fixed maximum without taking local conditions into account is certain to be inaccurate and may allow many carriers to be overcompensated in situations where wireless technology is in fact more efficient. Also, developing a nationwide “average” wireless loop cost proxy would require the assembly and review of more data than necessary. The informational demands are less where the Commission simply builds a model whose algorithm takes local conditions into account and allows for the possibility of comparing wireline and wireless loop costs. The numerical comparison would follow user specification of the input values for the particular area under examination. There would be no need for detailed calculations in those areas where wireless loops are clearly not the least-cost technology.

- *The Commission’s Adopted Cost Model Should Consider Any Wireless Technology Suitable for Local Exchange Service*

Consistent with the principle that the model should reflect the most efficient technology, there is no basis for artificially limiting the set of technologies covered when modeling the cost of providing universal service using wireless technologies. There is no reason to risk increasing the efficiency losses from excessive support levels -- efficiency losses that stem both from distortions in supported carriers’ investment decisions and from the negative effects of the taxes imposed on the telecommunications industry to provide support funds. Moreover, various wireless technologies available today have very different cost and capacity characteristics. Some technologies are well suited to extremely

---

<sup>16</sup>See, e.g., Further Notice, para. 44 (models which assume uniform population distribution will yield distorted results); Id., para. 58 (failure of both BCPM and Hatfield to incorporate terrain factors “seriously undermines the accuracy of the outside plant costs predicted by each model”).

sparse user populations, while others are optimal for denser urban operations.

Additionally, flexibility is important because the pace of technological innovation in this area is rapid. In light of these facts, the cost model should allow for consideration of microwave, satellite, and other wireless technologies that might be used to provide the supported services. The “wireless threshold” should be limited only by the principle that it be based on the costs of the lowest-cost technology capable of providing the services in a given area.

- *The Commission Can Develop A Sufficient Record for A Wireless Cost Model*

The Commission notes that it has almost no information regarding how to estimate the costs of wireless local loops, and is concerned about whether a wireless platform could be developed within the timetable contemplated for adoption of a forward-looking cost based model. The Further Notice also asks whether wireless companies have already developed cost models, and strongly encourages commenters to submit models or other assumptions they believe should be included.<sup>17</sup>

Of course, for competitive reasons, AirTouch cannot submit internal financial models or analysis examining where and under what conditions AirTouch should enter a particular market. Moreover, in order to be included in the Commission’s cost model, any algorithms, assumptions or underlying data must be verifiable and available to all interested parties for review and comment.<sup>18</sup> Thus, the Commission must generally rely on publicly available data. Further, the question addressed by the cost proxy model – whether wireless technology is more efficient-- is quite different than the question of whether a wireless carrier using more efficient technology could profitably compete with an incumbent LEC, even where the wireless carrier also received subsidies. The cost proxy modeling exercise necessarily ignores a number of factors relevant to the market

---

<sup>17</sup>Further Notice, paras. 99-100.

<sup>18</sup>See, e.g., Further Notice, para. 99, n.162; Id., para. 13, n.39.

entry decision such as the fact that an incumbent's wireline costs are sunk costs, costs to interconnect with the ILEC, or the capital cost of acquiring a wireless license. Thus, models or analysis about whether market entry is economical are not likely to shed light on the choices that should be used in modeling a forward-looking least-cost approach to universal service.

However, data concerning the cost, capacity, and capabilities of wireless facilities as compared to wireline are publicly available in government and academic studies and from manufacturers. These reports generally list their informational sources and the authors can often provide additional insight. For example, the "Survey of Rural Information Infrastructure Technologies," describes a variety of wireless technologies used to promote universal service goals, and is easily available to the FCC from the Commerce Department.<sup>19</sup> Wireless technology is being used throughout the world, including Europe, Sri Lanka and Australia. Information from abroad can also be used to inform the Commission's development of a wireless threshold in the cost proxy model.

AirTouch provides a sample of publicly available information below:

- A Congressional report states that "according to some published figures . . . the cost of a wireless local loop has dropped to between \$800 and \$1,200, which is comparable to the average cost of a copper loop in the United States...in areas that are sparsely populated or have difficult terrain, the cost of a copper loop can easily reach as high as \$2,000 to \$5,000, making wireless solutions much more attractive."<sup>20</sup>

---

<sup>19</sup>NTIA Special Publication 95-33: "Survey of Rural Information Infrastructure Technologies," was prepared by staff of the Institute for Telecommunications Sciences of the National Telecommunications and Information Administration, U.S. Department of Commerce, Boulder, CO 80303, and can be accessed through a link from the FCC's web page at <http://www.fcc.gov/wtb/basicex.html>.

<sup>20</sup>Congress of the United States, Office of Technology Assessment, *Wireless Technologies and the National Information Infrastructure*, OTA-ITC-622, pp. 216-217.

- A paper prepared by Terrence P. McGarty of the Telmarc Group notes that “wire based systems have capital per subscriber as high as \$1,800. Wireless is at about \$250, which does not include the handset.” This paper includes an analysis of the economics of using LMDS to provide local exchange services, estimating that LMDS requires capital per household of about \$1,000.<sup>21</sup>
- A paper prepared by David Trinkwon of Northern Telecom, available at the same website, describes the costs, benefits, and relevant technical and economic factors affecting the viability of a Nortel fixed wireless access product. It is likely that specific cost figures are available from Nortel and other vendors, although, as with any commercial product, prices will likely vary depending on what products are purchased, in what volumes, and other factors affecting negotiations with vendors.<sup>22</sup>
- For example, the September 15, 1997, issue of “Interactive Week” newsletter reports that a Yankee Group study found that wireless local loop costs still average around \$1,000 per subscriber. A NorTel sales director states that, on average a 30,000 to 50,000 line order for their least expensive, TDMA-based system would sell for \$650-\$750 per subscriber, but above \$1,000 per sub in smaller deployments.<sup>23</sup>
- At the same time, a Montana telephone cooperative recently announced that it plans to offer wireless and wireline local phone service using an Integrated Wireless Solution built by NorTel, which includes the DMS-100 Wireless digital switching system and IS-95 CDMA base station equipment. These NorTel wireless systems are in commercial service around the world.<sup>24</sup> The Commission should therefore not only be able to get cost figures from NorTel, but compare the costs of wireless technology to wireline in rural areas.<sup>25</sup>

---

<sup>21</sup>McGarty, “The Economic Viability of Wireless Local Loop and its Impact on Universal Service,” submitted at an October 1996 seminar entitled “The Role of Wireless Communications In Delivering Universal Service” hosted by the Columbia Institute for Tele-Information. See also Further Notice, para. 99, n. 161 (referencing another paper from that seminar and where these papers can be found).

<sup>22</sup>Trinkwon, “Technology of Fixed Wireless Access,” presented October 30, 1996.

<sup>23</sup>“Waiting for the Wireless Local Loop to Roll,” Interactive Week newsletter (September 15, 1997), available at <http://www.zdnet.com/intweek/print/970915/inwk0003.html>.

<sup>24</sup>See “Wireless Local Loop,” published by The Day Group, Greenwich, CT (September 1997), at 3.

<sup>25</sup>The news story indicates that the NorTel system is being installed by Montana Wireless, an affiliate of Blackfoot Telephone Cooperative, Inc., and Clark Fork Telecommunications, Inc. According to 1996 data available from NECA, Blackfoot had an unseparated NTS revenue requirement of \$473.80 per loop while Clark Fork’s figure was \$616.88. The Commission could therefore rationally conclude that, in these circumstances, the cost of wireless technology is less than \$473.00.

- A Telestrategies Seminar on wireless local loop held on January 15, 1996, included a number of presentations which included estimates about the comparative costs of wireless and wireline technology. For example, Herschel Shosteck presented data compiled from trade press reports and estimations indicating costs per subscriber (for the 1992-1995 time frame) varying across different wireless technologies as follows: Interdigital Ultraphone, \$2300; Conventional Copper Wire, \$1000-\$2000; Hughes E-TDMA, \$960, Motorola WiLL, \$500. Shosteck's presentation also demonstrated a trend of declining costs for wireless local loop compared to static prices for conventional copper; estimating that full per subscriber costs for wireless local loop would be between \$600-\$650 in 1998, and \$400-\$450 in the year 2000.<sup>26</sup>
- A presentation from the same Telestrategies seminar given by Randall Schwartz of the PA Consulting Group concluded that the cost of a "second generation," e.g., DCS1800 or DECT wireless local loop connection, would cost about \$300/line in 1997 (not including the user terminal).

Admittedly, these estimates of the cost of a wireless loop vary, but they are all within the same general range and all indicate that wireless technology can bring significant savings to universal service programs. The point is that data suitable for including in a cost proxy model regarding the costs of wireless local loops is readily available from publicly available sources. Lack of available data is not a sufficient reason to exclude a "wireless threshold" in capping the loop costs included in the cost model.

Even a very imprecise threshold can improve the efficiency of the universal service program. If the Commission has only an imprecise sense of wireless costs, it would be reasonable for the Commission to set a threshold at the high end of the range. Thus, if the threshold applies, the Commission will not unreasonably deny a carrier support funds and the Commission will be furthering its established goal of preventing excessive support. This outcome is superior to abandoning or implementing a wireless threshold, particularly where the Commission has already established that cost proxy models must consider the least-cost, most-efficient technology.

---

<sup>26</sup>"World Demand for Wireless Local Loop – The Potential in Developing Countries," Herschel Shosteck Associates, Ltd.; "World Demand for Wireless Local Loop Systems: A Country by Country Forecast Through Year 2000," Herschel Shosteck Associates, Ltd.



- *Competitive Bidding Is A Better Method To Capture Efficiencies Based on Wireline and Wireless Cost Differences And Should Be Adopted When Markets Are Sufficiently Competitive*

The Further Notice also seeks comment on whether the development of a competitive bidding arrangement would be a better way to capture the differing costs between wireline and wireless technology.<sup>27</sup> As AirTouch has noted previously, there are clear public-interest benefits from the use of market-based mechanisms such as competitive bidding.<sup>28</sup> Even where the Commission can compile a record sufficient to support a decision on a wireless cost model, a competitive bidding arrangement is far superior at inducing carriers to reveal the true cost of providing a subsidized service, and to determine when the use of wireless technology is more efficient. Thus, competitive bidding is superior to regulatory analysis at identifying the most efficient carrier and ensuring that it is not subsidized by any more than necessary.

However, AirTouch does not believe that the theoretical superiority of auctions should disrupt the Commission's significant efforts to develop a cost proxy model. Auctions should not be used too soon in the transition from a monopoly environment. In order to function properly, competitive bidding requires that conditions be ripe for meaningful competition in the bidding process. Unless properly designed and implemented in suitable markets, the auction process may unfairly and inefficiently favor incumbents and result in unnecessarily large support payments.

---

<sup>27</sup>Further Notice, para. 100.

<sup>28</sup>See, e.g., Comments of AirTouch Communications, Inc. on Federal-State Joint Board Recommended Decision (December 19, 1996), at 24.

Problems in auction design include:

- *Information advantages possessed by the incumbent.* At present, universal service auctions are likely to result in conditions of asymmetric information: an incumbent is likely to be better informed about local costs and conditions than rival bidders. Due to this uncertainty, other parties are likely to overbid to provide a “cushion” against inadequate subsidy. Such a cushion will result in excessive support levels to ILECs. This additional support is wasteful: the incumbent’s superior information is simply due to its past monopoly position protected by regulation, and is not the result of superior effort and research which should normally be rewarded by competitive bidding.
- *Large sunk investments.* Incumbents have made large sunk investments which have the effect of entrenching them in their local markets, and making entry less desirable. Moreover, new entrants may need to make large sunk investments as well, or else bear a share of the incumbent’s costs through the purchase of unbundled network elements. These investments also increase the risk of entry. The result may be that support levels necessary to attract entrants will be excessive for ILECs.
- *The incumbent’s economies of density.* It is quite likely that incumbents will initially retain a dominant share of local traffic. To the extent there are economies of scale or density, ILECs will be favored.
- *The level of local competition.* Unless there is sufficient local competition in adjacent markets, it is highly unlikely that there will be sufficient competition for serving the universal service market.

In general, the lack of meaningful local competition is likely to persist for a significant period of time. The use of competitive bidding in these circumstances would leave the ILEC free to command high support levels.

The Commission is expected to open a separate proceeding on universal service auctions,<sup>29</sup> and AirTouch intends to make specific suggestions on auction design in that docket. AirTouch recommends that proceeding solicit comment on the following critical questions:

- *What market conditions must be met to trigger the use of auctions?*
- *What is it that parties will be bidding for?*
- *Will limits be put on bids, such as by reference to cost studies?*
- *How can auctions be used to set the level of subsidy where there will be multiple eligible carriers?*

The Commission should also solicit comment on the effect of decisions establishing the package of required services and the geographic service area. It will take time to develop the answers to these and other competitive bidding questions, and for market conditions to change. In the interim, auctions and proxy models are best used as checks on one another rather than substitutes.

## **CONCLUSION**

The Commission should include a “wireless threshold” in the cost proxy model in order to remain consistent with the established principles to use the least-cost, most efficient technology, and to implement Section 254 in a manner which is not biased toward any particular technology -- wireless or wireline. The level of the “wireless threshold” should be set based on local conditions, and reflect that there are a number of wireless technologies available. Publicly available data from vendors, consultants and other sources can be used to develop this cost figure within the established time frame. The

---

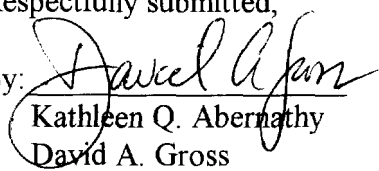
<sup>29</sup>Further Notice, para. 100, n.163.

*Comments of AirTouch Communications, Inc.  
on Wireless Threshold Issue - Section III.C.2(f)  
September 24, 1997*

Commission should also continue to examine whether market conditions are sufficiently competitive to allow universal service subsidies to be allocated by competitive bidding.

Respectfully submitted,

By:

  
Kathleen Q. Abernathy  
David A. Gross

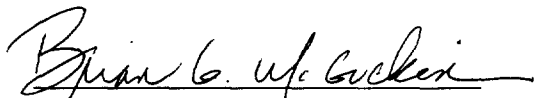
AirTouch Communications  
1818 N Street, Suite 800  
Washington, D.C. 20036  
(202) 293-3800

Charles D. Cosson  
AirTouch Communications  
One California Street, 29th Fl.  
San Francisco, CA 94111  
(415) 658-2434

September 24, 1997

Certificate of Service

I hereby certify that a copy of the foregoing comments of AirTouch Communications, Inc. was sent by hand or by United States first-class mail, postage prepaid, on this the 24<sup>th</sup> day of September, 1997 to the parties on the attached list.

A handwritten signature in cursive script, reading "Brian G. McGuckin", written over a horizontal line.

Brian G. McGuckin

September 24, 1997

The Honorable Reed E. Hundt,  
Chairman  
Federal Communications Commission  
1919 M Street, NW, Room 814  
Washington, DC 20554

The Honorable Rachelle B. Chong,  
Commissioner  
Federal Communications Commission  
1919 M Street, NW, Room 844  
Washington, DC 20554

The Honorable Susan Ness,  
Commissioner  
Federal Communications Commission  
1919 M Street, NW, Room 832  
Washington, DC 20554

The Honorable James H. Quello,  
Commissioner  
Federal Communications Commission  
1919 M Street, NW, Room 802  
Washington, DC 20554

The Honorable Julia Johnson,  
State Chair, Chairman  
Florida Public Service Commission  
2540 Shumard Oak Blvd.  
Gerald Gunter Building  
Tallahassee, FL 32399-0850

The Honorable David Baker,  
Commissioner  
Georgia Public Service Commission  
244 Washington Street, SW  
Atlanta, GA 30334-5701

The Honorable Sharon L. Nelson,  
Chairman  
Washington Utilities and Transportation  
Commission  
1300 South Evergreen Park Drive, SW  
P.O. Box 47250  
Olympia, WA 98504-7250

The Honorable Laska Schoenfelder,  
Commissioner  
South Dakota Public Utilities  
Commission  
State Capitol, 500 East Capitol Street  
Pierre, SD 57501-5070

Martha S. Hogerty  
Missouri Office of Public Council  
301 West High Street, Suite 250  
P.O. Box 7800  
Jefferson City, MO 65102

Tom Boasberg  
Federal Communications Commission  
Office of the Chairman  
1919 M Street, NW, Room 814  
Washington, DC 20554

Charles Bolle  
South Dakota Public Utilities  
Commission  
State Capitol, 500 East Capitol Street  
Pierre, SD 57501-5070

Deonne Bruning  
Nebraska Public Service Commission  
300 The Atrium, 1200 N Street  
P.O. Box 94927  
Lincoln, NE 68509-4927

James Casserly  
Federal Communications Commission  
Commissioner Ness's Office  
1919 M Street, NW, Room 832  
Washington, DC 20554

Rowland Curry  
Texas Public Utility Commission  
1701 North Congress Avenue  
P.O. Box 13326  
Austin, TX 78701

Bridget Duff, State Staff Chair  
Florida Public Service Commission  
2540 Shumard Oak Blvd  
Tallahassee, FL 32399-0866

Kathleen Franco  
Federal Communications Commission  
Commissioner Chong's Office  
1919 M Street, NW, Room 844  
Washington, DC 20554

Paul Gallant  
Federal Communications Commission  
Commissioner Quello's Office  
1919 M Street, NW, Room 802  
Washington, DC 20554

Emily Hoffnar, Federal Staff Chair  
Federal Communications Commission  
Accounting and Audits Division  
Universal Service Branch  
2100 M Street, NW, Room 8617  
Washington, DC 20554

Lori Kenyon  
Alaska Public Utilities Commission  
1016 West Sixth Avenue, Suite 400  
Anchorage, AK 99501

Debra M Kriete  
Pennsylvania Public Utilities Commission  
North Office Building, Room 110  
Commonwealth and North Avenues  
P.O. Box 3265  
Harrisburg, PA 17105-3265

Sandra Makeeff  
Iowa Utilities Board  
Lucas State Office Building  
Des Moines, IA 50319

Phillip F. McClelland  
Pennsylvania Office of Consumer  
Advocate  
1425 Strawberry Square  
Harrisburg, PA 17120

Thor Nelson  
Colorado Office of Consumer Counsel  
1580 Logan Street, Suite 610  
Denver, CO 80203

Barry Payne  
Indiana Office of the Consumer Counsel  
100 North Senate Avenue, Room N501  
Indianapolis, IN 46204-2208

Timothy Petersen, Deputy Division Chief  
Federal Communications Commission  
Accounting and Audits Division  
2100 M Street, NW, Room 8613  
Washington, DC 20554

James B. Ramsay  
National Association of Regulatory  
Utility Commissioners  
1100 Pennsylvania Avenue, NW  
P.O. Box 684  
Washington, DC 20044-0684

Brian Roberts  
California Public Utilities Commission  
505 Van Ness Avenue  
San Francisco, CA 94102

Kevin Schwenzfeier  
NYS Dept of Public Service  
3 Empire State Plaza  
Albany, NY 12223

Tiane Sommer  
Georgia Public Service Commission  
244 Washington Street, SW  
Atlanta, GA 30334-5701

Sheryl Todd (plus 8 copies)  
Federal Communications Commission  
Accounting and Audits Division  
Universal Service Branch  
2100 M Street, NW Room 8611  
Washington, DC 20554